

Notice of Allowability

Application No.	Applicant(s)	
10/566,131	EJIMA ET AL.	
Examiner	Art Unit	
Disler Paul	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to 1/27/06.
2. The allowed claim(s) is/are 51-70.
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some* c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 1) hereto or 2) to Paper No./Mail Date _____.
(b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of
 Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO/SB/08),
 Paper No./Mail Date 3/29/9/14/06
4. Examiner's Comment Regarding Requirement for Deposit
 of Biological Material
5. Notice of Informal Patent Application
6. Interview Summary (PTO-413),
 Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 50-71 are allowed.
2. Re claim 50, While, the combined teaching of Katou et al. and Fujita et al. as a whole, teach of having the audio signal band extending apparatus comprising: the noise generating device for generating a noise signal level-correlated to and so as to change according to one of a level of an inputted signal using bandpass filter (katou, fig.1) and the further having a processor and adding device for adding up the inputted signal and an outputted signal from said signal processing device, and for outputting a signal having an addition result, wherein the noise generating device comprises: a level signal generating device for detecting a level of a signal inputted to said noise generating device, and for generating and outputting a level signal having a detected level; a noise signal generating device for generating and outputting a noise signal according to the signal inputted to said noise generating device.

However, the combined teaching of Katou et al. and fujita et al. as a whole, fail to disclose of the specific wherein the signal processing device for multiplying a generated noise signal by a predetermined transfer function so that, at a lower limit frequency of a predetermined band-extended signal, a level of the generated noise signal substantially coincides with the level of the inputted signal and a spectral continuity thereof is kept when addition is executed by an adding device, and for outputting a signal having a multiplication result; and a multiplying device for multiplying the level signal from said level signal generating device by the noise signal from said noise signal generating device, and for outputting a noise signal having a multiplication result.

Re claim 51, While, the combined teaching of Katou et al. and Fujita et al. as a whole, teach of having the audio signal band extending apparatus comprising: the noise generating device for generating a noise signal level-correlated to and so as to change according to one of a level of an inputted signal using bandpass filter (katou, fig.1) and the further having a processor and adding device for adding up the inputted signal and an outputted signal from said signal processing device, and for outputting a signal having an addition result.

However, the combined teaching of Katou et al. and fujita et al. as a whole, fail to disclose of the specific wherein the signal processing device for multiplying a generated noise signal by a predetermined transfer function so that, at a lower limit frequency of a predetermined band-extended signal, a level of the generated noise signal substantially coincides with the level of the inputted signal and a spectral continuity thereof is kept when addition is executed by an adding device, and for outputting a signal having a multiplication result; and further wherein said noise generating device comprises: a first cutting-out device for cutting out predetermined higher-order bits from the signal inputted to said noise generating device, and for outputting a signal including the higher-order bits; at least one second cutting-out device for cutting out at least one of predetermined intermediate-order bits and predetermined lower-order bits from the signal inputted to said noise generating device, and for outputting a signal including the at least one of the predetermined intermediate-order bits and predetermined lower-order bits; and a multiplying device for multiplying a signal from said first cutting-out device by a signal from said second cutting-out device, and for outputting a noise signal having a multiplication result.

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Re claim 52, While, the combined teaching of Katou et al. and Fujita et al. as a whole, teach of having the audio signal band extending apparatus comprising: the noise generating device for generating a noise signal level-correlated to and so as to change according to one of a level of an inputted signal using bandpass filter (katou, fig.1) and the further having a processor and adding device for adding up the inputted signal and an outputted signal from said signal processing device, and for outputting a signal having an addition result.

However, the combined teaching of Katou et al. and fujita et al. as a whole, fail to disclose of the specific wherein the signal processing device for multiplying a generated noise signal by a predetermined transfer function so that, at a lower limit frequency of a predetermined band-extended signal, a level of the generated noise signal substantially coincides with the level of the inputted signal and a spectral continuity thereof is kept when addition is executed by an adding device, and for outputting a signal having a multiplication result; and further wherein said noise generating device comprises: a non-uniformity quantization device for quantizing a signal inputted to said noise generating device non-uniformly relative to a level thereof, and for outputting a resultant signal; a dequantization device for executing a processing opposite to a processing executed by said non-uniformity quantization device on a signal from said non-uniformity quantization device, and for outputting a resultant signal; and a subtraction device for generating and outputting a quantized noise signal of the signal inputted to said noise generating device by calculating a difference between the signal inputted to said noise generating device and a signal from said dequantization device.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DP


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